NEW YORK STATE DEPARTMENT OF TRANSPORTATION MATERIALS BUREAU ALBANY, N.Y. 12232

MATERIALS METHOD

MATERIALS METHOD - NY 2.1

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INSPECTION, SAMPLING AND TESTING OF GRADE 60 STEEL REINFORCING BARS

APPROVED BY -

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MAP CODE 7.42-1-2.1

HARRY H. MCLEAN, Director - MATERIALS BUREAU

I. SCOPE

This Method describes specific procedures for the control of Grade 60 steel reinforcing bars as specified in all DEPARTMENT CONTRACTS LET ON OR AFTER AUGUST 24, 1972. These procedures are designed to allow manufacturers to produce reinforcing bars conforming to Department specifications under their own quality control procedures and supply to Department projects through various fabrication shops on the basis of certifications of compliance with Department specifications executed by the Manufacturer and the Fabrication Shop. Manufacturing locations which demonstrate and maintain a history of satisfactory conformance with Department specifications and procedures are approved by the Materials Bureau to follow this Method.

Reinforcing bars as specified in Department contracts let prior to August 24,1972 and bars from manufacturing locations not approved by the Materials Bureau are controlled by the procedures of Materials Method N.Y. 2.

Also, this Method describes procedures for the Department's project personnel to follow to determine that the material arriving at the project site is in accordance with the Department's Quality Assurance Program.

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50 Wolf Road, POD 34 Albany, New York 12232

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GENERAL METHOD III.

The Materials Bureau establishes a list of rolling mills approved to produce steel reinforcing bars. Such bars are supplied by fabricating shops to Department projects together with certified test reports covering the material in the shipment and/or a certificate indicating conformance to Department specifications.

Under Materials Bureau direction, periodic sampling of overall production is accomplished at rolling mills. Satisfactory test results under this sampling program and compliance with the certification procedures are the basis for a manufacturing location remaining on the Approved List. Unsatisfactory test results may cause permanent rejection of specific heats of material for Department use.

Project personnel inspect each incoming shipment to insure the presence of a proper certification form and the absence of any rejection material prior to delivery acceptance and incorporation into the work.

When necessary, rolling mills are removed from the Approved List until such time as they satisfactorily demonstrate conformance to Department specifications and procedures.

A rolling mill that has been removed from the Approved List can be returned to the Approved List by having four consecutive lots tested and accepted by the Materials Bureau.

A new mill is placed on the Approved List after ten consecutive lots are tested and accepted by the Materials Bureau.

IV. DEFINITION OF TERMS

- MANUFACTURER A company engaged in the production of steel reinforcing bars.
- ROLLING MILL A facility owned and operated by a Manufacturer for producing steel reinforcing bars at a specific location.
- FABRICATION SHOP A facility where reinforcing bars may be fabricated to meet the requirements called for on the job and from which bars are shipped to project sites.
- 4. DEPARTMENT The New York State Department of Transportation.

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5. MATERIALS BUREAU - A facility of the New York State Department of Transportation which may be contacted by mailing to:

Mr. Harry H. McLean Director of Engineering Materials State Campus - Building #7A 1220 Washington Avenue Albany, New York 12232

OR

Telephone the Product Control Office at:

Area Code 518 Telephone Number 457-5642

OR

T.W.X. to:

710-441-88221 N.Y.S. D.o.T., Albany Campus, Materials Bureau, P.C.O.

- 6. <u>INSPECTION AUTHORITY</u> An Office designated by the Materials Bureau for inspection control on behalf of the Department.
- 7. <u>INSPECTOR</u> An individual employed by the Inspection Authority and approved by the Materials Bureau, to function on inspection assignments on behalf of the Department.
- 8. PROJECT INSPECTOR The Department Representative responsible for the Department's Quality Assurance Program at the project site.
- 9. LIST OF APPROVED ROLLING MILLS A listing published by the Materials Bureau indicating all Rolling Mills that have been approved as suppliers of steel reinforcing bars under a certification program.
- 10. <u>FORMS</u> The following forms are published and issued by the Department, for use by their designated representatives:
 - a. BR-240, Sample and Acceptance Transmittal:
 This form transmits the Inspector's sample information to the Materials Bureau and upon validation conveys acceptance action to the Inspector. Detailed instructions for proper completion and transmittal are contained in Materials Method N.Y. 18.1. Applicable examples are shown in Appendix "A."

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- b. BR-241, Sample Transmittal Envelope:
 This is a heavy-duty envelope used to contain Form BR-240.
- c. <u>BR-131, Steel Reinf. Tag</u>:
 This form is a yellow tag used on reinforcing bars for identification purposes.
- d. BR-108, Rush Tag:
 This form has the address of the Materials Bureau printed on it and may be used on the outside of sample bundles as a shipping tag.
- 11. REINFORCING BAR SHIPMENT CERTIFICATION This document(s), executed by the Fabrication Shop, must accompany each shipment to Department projects of reinforcing bars from Rolling Mills on the Approved List. The following minimal information must be shown on this document:
 - a. Contractor's Name
 - b. Department Contract Number
 - c. Shipment Date
 - d. Vehicle Type and Identification Number
 - e. Itemized breakdown of shipment by bar size, heat number, Rolling Mill where produced and approximate weight.
 - f. Statement attesting that material in the shipment conforms to the specific NYS DoT specification designation.
 - g. Signature of Fabrication Shop employee responsible for shipment and date of execution. This form need not be notarized.

A sample format of the "Reinforcing Bar Shipment Certification" which may be reproduced can be found on Page 14. The entries, "Fabrication Contract No." and "Shipment No." were included on the certification for the convenience of the Fabrication Shop.

12. MILL-IMPRINT MARKINGS - Markings rolled into each bar which identify the rolling mill producing the bar, the type of steel used in manufacture and the strength grade of the bar. Drawings of the mill imprint markings for each mill on the Approved List will be issued with the Approved List.

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V. STEPS IN PROCEDURE

Responsibility

Action

Materials Bureau

- Establishes Approved List of Rolling Mills authorized to supply reinforcing bars for Department projects under a certification program. *
 - a. The initial list is based on previous test history by the Materials Bureau for each Mill.
 - b. This list will be updated, as necessary.

MATERIAL FLOW TO PROJECT SITE

Approved Rolling Mill

- 2. Produces reinforcing bars in conformance with NYS DoT Specifications.
- 3. Ships mill banded bundles of reinforcing bars to fabrication shop with mill test report covering each size bar of each heat shipped.

Fabrication Shop

- 4. Receives mill banded bundles with Mill Test Reports for each heat number and maintains file of such reports available to a Department representative at all times.
- 5. Receives order for NYS DoT reinforcing bars from a Contractor progressing a Department project.
- 6. Fabricates bars, as necessary, to fill order from mill banded bundles of certified stock.
- 7. Ships bars to Project with certification form approved by the Department (See Definition No. 11 on Page 4).

^{*}NOTE - Reinforcing Bars from Manufacturing Locations Not on the Approved List are controlled by the Procedures of Materials Method N.Y. 2.

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MONITOR SAMPLING PROCEDURE AT ROLLING MILLS ON APPROVED LIST

Responsibility

Materials Bureau

Inspection Authority

Inspector

Action

- 8. Determines the frequency of monitor sampling at each Rolling Mill on Approved List.
 - a. In general, this frequency will be based upon the volume supplied by the Mill.
- 9. Designates Inspection Authority for each Rolling Mill giving the frequency that samples will be taken.
- 10. Assigns Inspector as required
- 11. Visits Rolling Mill and samples as many lots as produced during the Inspector's normal work day.
 - a. A lot is defined as all the bars of any one size rolled at one time from the same heat.
 - b. For each Lot, 20 two foot long random samples are to be taken at the shear location.
- 12. Assigns a Lot Number to each Lot for reference purposes.
 - a. Consecutive Lot numbers starting with "1" at the beginning of each calendar year are to be used for each mill.
- 13. Affixes an identification tag, Form BR-131, to each bar in the sample.
 - a. The lot number, heat number and bar size shall be entered on each tag.
- 14. Completes Form BR-240 for each lot in accordance with Materials Method N.Y. 18.1 and Example No.1 at the end of this Method.

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Responsibility

Action

Inspector
 (cont'd)

- 15. Places BR-240 inside envelope, Form BR-241.
- 16. Wraps samples for each lot and BR-241 envelope securely in burlap or heavy paper.
 - a. Care shall be exercised to see that the barbed ends of the wrapping wire used to secure the bundles do not protrude.
 - b. When necessary more than one bundle should be used to expedite handling during transmittal of the samples.
- 17. Wires a shipping tag securely to the outside of each bundle.
 - a. Form BR-108 is provided for this purpose, however, any tag showing the same address may be used.
 - b. The Lot Number shall be indicated on each tag.
- 18. Arranges with a commercial trucker's office for transmission of samples "Collect" to the Materials Bureau.
 - a. The Inspector is expected to personally deliver the bundled samples to the trucker or to witness the "pick-up" of the samples by the trucker. If this is not possible, the Inspector is to seal the bundles, using any means at his disposal (including Department security seals), in such a manner as to make the sample bundles tamper-proof.

Materials Bureau

- 19. Performs required tests on the lot for conformance with Department Specifications.
 - a. Of the 20 samples representing the lot, should two or more samples not meet the specification for any or all properties tested, the lot shall be rejected.
- 20. Indicates acceptance action on BR-240.
- 21. Validates BR-240 and sends to Inspection Authority as described in Materials Method N.Y. 18.1

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Responsibility

Action

Inspection Authority

- 22. Retains yellow copy of BR-240 sends green copy to Inspector and notifies Mill of action taken by Materials Bureau.
 - a. When the lot is ACCEPTED, this sequence of Steps ends here.
 - b. When the lot is REJECTED, the sequence continues as follows.

Materials Bureau

- 23. Issues a rejection notice for the particular heat number to the Manufacturer, All Fabrication Shops*. Inspection Authorities and Region Offices of the Department.
 - *NOTE: It is not necessary to notify all Fabrication Shops if the manufacturer can trace the rejected material and present the Department written documentation that the material did not go to Fabrication Shop(s) doing Department work and guarantee it will not go to Department work in the future.

Manufacturer, Mill & Fabrication Shops

24. Remove all material of rejected heats from shipments to NYS DoT projects.

Materials Bureau

25. Instructs Inspection Authority to obtain additional samples.

Inspection Authority

26. Assigns Inspector to visit Rolling Mill.

Inspector

- 27. Obtains samples from all lots produced at the mill during the inspector's normal work day. However, at least two (2) lots must be sampled.
- 28. Packages and transmits samples to Materials Bureau as indicated in Steps Nos. 12 18 above.

Materials Bureau

- 29. Performs required tests on all samples.
- 30. Indicates Acceptance Action on BR-240.
 - a. If test results are satisfactory, the material is accepted and notification made as in Steps Nos. 20 and 21 above.
 - b. If test results are unsatisfactory, the Rolling Mill loses its certification privilege as follows.

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Responsibility

Materials Bureau

Action

31. Removes Rolling Mill from Approved List.

- 32. Notifies Manufacturer, Fabrication Shops, Inspection Authorities and NYS DoT Region Offices that the Rolling Mill has been removed from the Approved List.
 - The Rolling Mill cannot supply reinforcing bars for use on Department work under certification until such time as the Mill is returned to the Approved List as outlined in Step Nos. 37 - 41.
 - Materials from this Rolling Mill can be supplied to the NYS DoT projects only under the provisions of Materials Method N.Y. 2.

PROJECT PROCEDURE

Responsibility

Action

Project Inspector

- 33. Inspects each incoming shipment of reinforcing bars for "Evidence of Acceptability."
 - The following check list is provided to assist project Inspectors in determining acceptable deliveries of reinforcing bars.

STEP

CHECK LIST FOR INCOMING REINFORCEMENT BAR SHIPMENTS

(1)	PRESENCE OF PROPER CERTIFICATION	YES
(2)	ROLLING MILL ON APPROVED LIST	YES Go TO #3 NO
(3)	MILL-IMPRINT MARKINGS ON THE BARS MATCH THAT OF THE ROLLING MILL AND INDICATE THE REQUIRED STRENGTH GRADE (SEE DEFINITION 12)	YES
(4)	REJECTED HEAT NUMBERS INCLUDED IN SHIPMENT	YES SEE STEP 34A ND ACCEPT DELIVERY

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Responsibility

Action

Project Inspector (cont'd)

CHECK LIST FOR INCOMING REINFORCEMENT BAR SHIPMENTS

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- - *34A. Refuses delivery of those bars with rejected heat numbers.
 - 34B. Refuses delivery of entire shipment.
 - 35. Notifies Materials Bureau of details of delivery refusal.

Materials Bureau

- 36. Investigates matters with Fabricating Shop.
 - a. If this is first occurrence, warns Shop against a repeat situation.
 - b. A second unjustified occurrence will revert the Shop to full sampling and shipment inspection under Materials Method N.Y. 2.
- *NOTE Notifications of rejections should be kept on file and the certification scanned to assure that bars on that size and heat are not received for a period of one year after notification.

PROCEDURE FOR A NEW MILL
ATTAINING APPROVED LIST STATUS
OR A MILL RETURNING TO APPROVED LIST

Manufacturer

37. Submits written application to Materials Bureau to have a Rolling Mill placed on the Approved List.

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Responsibility

Materials Bureau

Action

38. Evaluates request as related to Department supply requirements and, if in order, designates Inspection Authority for Rolling Mill.

STEPS NOS. 9 - 22 ABOVE ARE REPEATED UNTIL FOUR CONSECUTIVE LOTS ARE ACCEPTED. IN THE CASE OF ROLLING MILLS RETURNIGN TO THE APPROVED LIST, THESE LOTS MUST BE MANUFACTURED AFTER THE LAST LOT THAT FAILED TO MEET N.Y.S. D.O.T. SPECIFICATIONS AND CAUSED THE MILL'S REMOVAL FROM THE APPROVED LIST. FOR NEW MILLS STEPS NOS. 9 - 22 ARE REPEATED UNTIL 10 CONSECUTIVE LOTS ARE ACCEPTED.

- 39. Issues BR-240 covering consecutive acceptable Lots.
- 40. Revises Approved List to include added Rolling Mill.
- 41. Distributes updated Approved List to all involved parties.

APPENDIX

"Examples of Forms"

1. A BR-240 prepared by an Inspector for a random monitor sample obtained at a Rolling Mill on the Approved List.

SAMPLE AND ACCEPTANCE TRANSMITTAL NYSDOT MATERIALS BUREAU SERIAL NO 46395 DATE REC D TEST NO							
TO: Material Represented by the Sample Described Below Was							
ONFor							
	Action Official Only When Validated Bel	ow By The Materials Bureau)					
UPPER PORTION FOR MA	TERIALS BUREAU ONLY - INSPECTO		ICABLE BOXES BELOW				
	Rebars						
20 - 2' samples	XYZ Steel Co., Mill		e QUANTY N LOT 7 LOT NO				
#4 Bar	8 MANUFACTURER AND LOCATION (IF DIF	FERENT THAN ABOVE,	9 B4TCH NO 10 DATE OF MFGF 6/1/75				
Heat No. 243N619	11 SAMPLED 17 12 TYPE BPR SAMPLE Shear Location APPROVED LIST MAT 14 SAMPLED BY NOLD STIME.						
	15 CONTRACTOR AND PROJECT LOCATION		Pete Moss Reg. 5				
RETA N PINK COPY FOR YOUR RECORDS	A Commence of						

rejected monitor sample at a Rolling Mill on the Approved List.

SAMPLE AND ACCEPTANCE TRANSMITTAL NYSDOT MATERIALS BUREAU SER A 896 DATE RECD TEST NO.							
TO: Material Represented by the Sample Described Below Was							
ONFor							
()	action Official Only When Validated Below	By The Materials Bu	reau)				
UPPER PORTION FOR MAT	ERIALS BUREAU ONLY - INSPECTOR TO	O COMPLETE ALL	APPLICABL	E BOXES BE	LOW		
16 ADDITIONAL NEO SEE INSTRUCTIONS ON REAR							
20 - 2' Samples	S SUPPLIER AND LOCATION XYZ Steel Co., Milltown, N.Y. 6 QUANTITY N LOT 7. LOT 6						
#4 Bar	B MANUFACT RER AND LOCATION (IF DIFFERE	B MANUFACT IRER AND LOCATION (IF DIFFERENT THAN ABOVE) 9 BATCH NO 10 D 6/					
Heat No.457K642	11 SAMPLED AT 12 TYPE BPR SAMPLE 13 SAMPLED FROM Shear Location Shear Location 14 SAMPLED BY INCL DIST NO OR AGE						
Additional sampling due to rejected Lot 1.	JOB INFO. SAMPLE CERTIFIED MAT Pete Moss Reg. 15. CONTRACTOR AND PROJECT LOCATION MATERIALS BUREAU VALIDATION				s Reg. 5		
RETAIN PINK COPY FOR YOUR RECORDS FORWARD ALL OTHERS TO MATERIALS BUREAU	-						

3. A BR-240 prepared by an Inspector for the second sample obtained at a Rolling Mill applying to Return to the Approved List.

	PTANCE TRANSMITTAL ERIALS BUREAU	463	97	DATE REC D	TEST NO		
TO: Material Represented by the Sample Described Below Was							
ONFor							
	(Action Official On Americal date					•	
UPPER PORTION FOR MA	TERIALS BUREAU C'L - INSPI						
	Rebars		09-01	6/10/75	4 20NTRA	CT NO -	
20 - 2' Samples	5 SUPPLIER AND LOCATION			6 QUANTT	12=	7 LOT NO	
#0 P	XYZ Steel Co., N	Milltown, N	.Υ.	-		8	
#8 Bar	8 MANUFACTURER AND LOCATION			9 BATC- N	=	10 DATE OF MEGR.	
Heat No. 915S720		- 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				6/10/75	
11eat 110. 9133720	11 SAMPLES 47 12 7-95		BPR SAMPLE	13 SAMPLE	D FROM		
Second Lot for Mill	X PLANT CONT	ROL SAMPLE	APPROVED L	Shea Shea	r Locat	ion	
to return to Approved	□ JOB X NFO		CERT F ED MA	100000000000000000000000000000000000000		Reg. 5	
List.	15 CONTRACTOR AND REGULECT LO			ATERIALS BUREAU VAL		neg. c	
	_			THE TOTAL OF THE TAIL			
TAIN PINK COPY FOR YOUR RECORDS							
DRWARD OTHERS TO MATERIALS BUREAU							

4. A BR-240 prepared by an Inspector for the first sample obtained at a new Rolling Mill applying for Approved List Status.

SAMPLE AND ACCEPTAN NYSDOT MATERIA		\$ERIAL NO 98	3	DATE REC	D	TEST NO		
TO: Material Represented by the Sample Described Below Was								
ONFor	ONFor							
(Acti	ion Official On., Anen validated Below	By The Materia	ls Bur	reau)				
	IALS BUREAU C'NEY - INSPECTOR							
16 ADDITIONAL NEO (SEE INSTRUCTIONS ON REAR)	1. MATER:A.	2 ITEM		3 DATE SA		- CONTRA	ACT NO	
20 - 2' Samples	Rebars	1 709	-01	6/15/		-	7 LOT NO	
#6 Bar	Strong Steel Co., Irontown, Pa 1				1			
Heat No. 09S1972	8. MANUFACTURES AND LOCATION (IF DIFFER	RENT THAN ABOVE		9	BATCH NO		6/15/75	
New Rolling Mill First Lot.	11 SAMPLED AT 12 TYPE BPR SAMPLE Shear Location Shear Location APPROVED LIST MAT JOB Tying Glick TTL						ST NO OR AGENCY)	
	JOB X INFO SAMPLE 15. CONTRACTOR AND PROJECT LOCATION		MA"		-		stville,Pa.	
RETAIN PINK COPY FOR YOUR RECORDS		•						

						FAGE 14		
agaille in a super		INFORCING	BAR SHIPMENT CERT	IFICATIO	N.	1		
FABRICATOR		PLANT LOCATION		TO	TOTAL WEIGHT ON VEHICLE (LBS.)			
SOLD TO		FABRICATOR CONTRACT NO.		NY	NYS DOT CONTRACT NO.			
DATE SHIPPED	SHIPMENT NO.	VEHICLE IDENTIFICATION		VE	VEHI CLE TY PE			
	N	MATERIAL	INCLUDED IN SHIPME	ENT				
BAR SIZE	HEAT NUMBER		PRODUCING ROL	LING MIL	Ĺ	MILL LOCATION		
I LEDERY CERTI	EV THE THE DECO	MATER DELLA	T CTTCL DADG LEDG	TAL DESCRI	Then control	M TO MEN YORK STATE		
	TRANSPORTATION SE					M TO NEW YORK STATE OR CEMENT CONCRETE		

TITLE

DATE